

ILLUSTRATIONS OF SOME AUSTRALIAN FISHES.

By G. P. WHITLEY.*

(Plates xxx.-xxxi. and text-figures.)

The crudest diagram of a fish reveals more of its character than the average description and facilitates identification of species. Thus the well-illustrated papers of Waite and McCulloch on Australian fishes were a tremendous advance on the pictureless pages of many of their predecessors. Though some hundreds of specimens have been well figured, many species still remain known only from old and often brief descriptions. I therefore propose to illustrate type specimens or authentic material of some of these less known species, and the drawings and photographs so collected will be embodied in my contemplated "Fishes of Australia" at a later date. In some cases, when suitable Australian specimens were not available, I have figured the species from adjacent waters. I have not repeated such references to literature as will be found in McCulloch's "Check-List" (Australian Museum Memoir, v., 1929).

Many worthless *nomina nuda* and substitute names of no validity are formally made synonyms of known species in this paper in order to purge the Australian list of numerous superfluous entries, and a few new names are propounded.

Family ELOPSIDAE.

Genus ELOPS Linné, 1766.

GULARUS, *subg. nov.*Orthotype, *Elops australis* Regan, 1909.

The Australian species differs from the American genotype (*E. saurus* L.) sufficiently to be regarded as a new subgenus characterized as follows:— Lower jaw included, the premaxillary teeth being exposed when mouth is closed. Twelve to 15 gill-rakers on lower part of anterior gill-arch. About 31 branchiostegal rays. Less than 100 scales in a longitudinal series. Less than 70 vertebrae.

Elops hawaiiensis Regan, 1909, also enters this new subgenus.

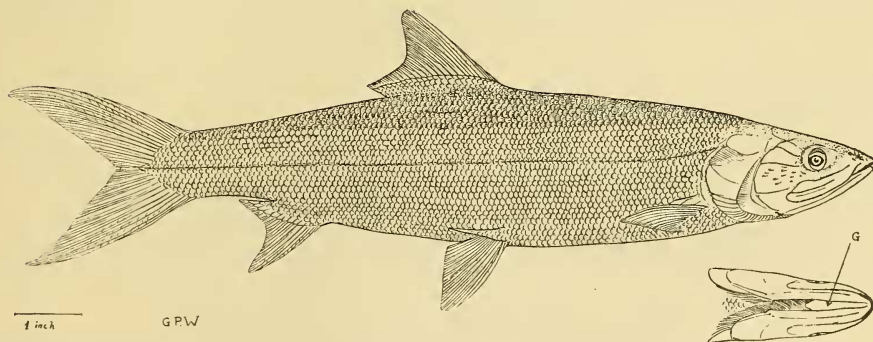


Fig. 1. Giant Herring, *Elops (Gularus) australis*. Topotype. G: Gular plate.

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ELOFS (GULARUS) AUSTRALIS Regan, 1909.

(Fig. 1.)

The accompanying illustration shows a topotypical specimen (Austr. Mus., regd. No. I.4656), 330 mm. in total length, from Port Jackson, and thus the same length as Regan's type and from the same place, though differing from his description very slightly in some proportions.

D.6, 18; A.4, 11; V.2, 13. Sc. 94. L.tr., 14/1/14.

Family ALBULIDAE.

ALBULA NEOGUINAICA Cuv. & Val., 1846.

(Fig. 2.)

D.iii., 15; A.ii., 7; P.i., 18; V.i., 9. L.lat., 70 to hypural, plus a few more on tail. L.tr., 9/1/9. About 23 predorsal scales. General proportions as figured. Colour, in alcohol, silvery, without conspicuous dark stripes as in the Hawaiian *A. virgata*.

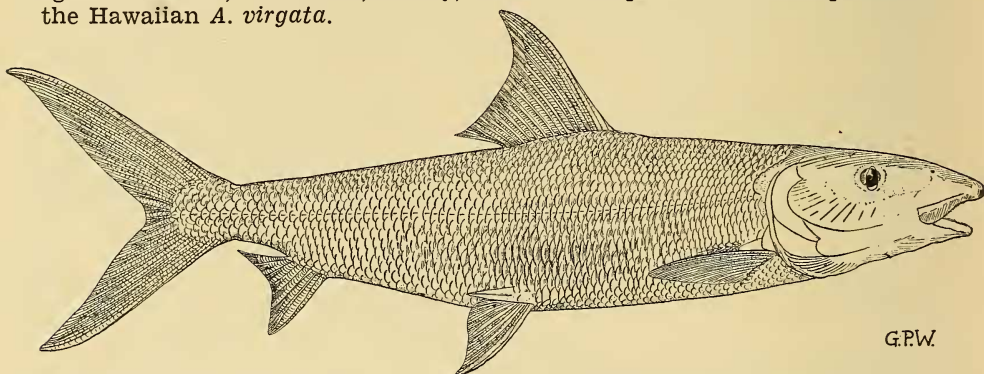


Fig. 2. Lady Fish, *Albula neoguinaica*.

Figured from a specimen 423 mm. in standard length or 20 inches overall.

Locality.—Netted in a lagoon, Ellice Islands, Oceania. Native name Kiokio. Presented by D. G. Kennedy. Austr. Mus., Regd. No. IA.5518.

The Australian Museum has another specimen from Lord Howe Island, from which place the species has not so far been recorded.

Family CHIROCENTRIDAE.

CHIROCENTRUS VORAX (Castelnau, 1873).

(Fig. 3.)

Neosudis vorax Castelnau, Proc. Zool. Acclim. Soc. Vict., ii., May 10, 1873, p. 118. New Caledonia.

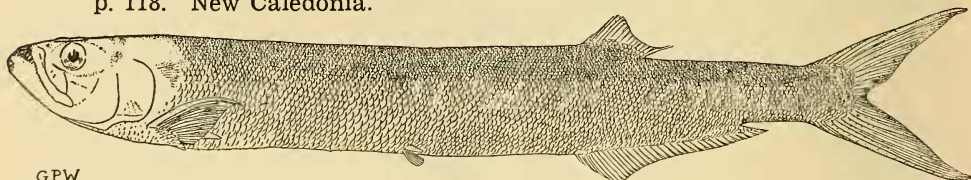


Fig. 3. Wolf Herring, *Chirocentrus vorax*.

Here illustrated from a 16 inch example from the Sir Edward Pellew Group, Gulf of Carpentaria, collected by the late Surgeon-Lieutenant W. E. J. Paradise (Austr. Mus., Regd. No. IA.1627). It has D.4, 13; A.4, 28; P.i., 13; V.i., 6.

Family CLUPEIDAE.

Genus CLUPEOIDES Bleeker, 1851.

CLUPEOIDES PAPUENSIS (Ramsay & Ogilby, 1886).

(Fig. 4.)

Corica papuensis Ramsay & Ogilby, Proc. Linn. Soc. N.S.W. (2), i., May 25, 1886, p. 19.

Clupeoides papuensis Weber, Nova Guinea, ix., 1913, pp. 519 and 607.

Id. Weber and Beaufort, Fish Indo-Austr. Arch., ii., 1913, p. 60.

Id. Regan, Ann. Mag. Nat. Hist. (9), x., 1922, p. 588.

Id. Fowler, Mem. Bishop. Mus., x., 1928, p. 31; xi., 1931, p. 315; and xi., 1934, p. 386.

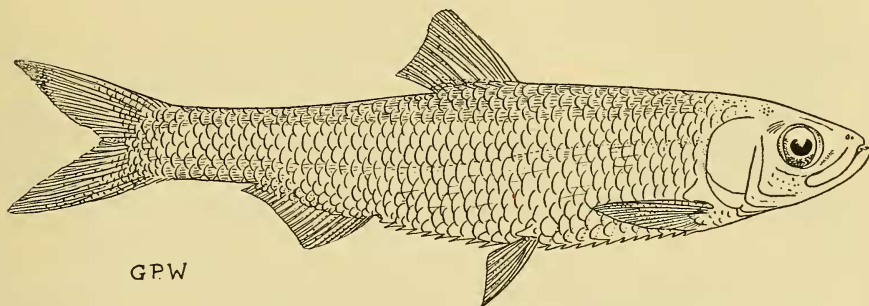


Fig. 4. Toothed River Herring, *Clupeoides papuensis*. Holotype.

Here figured for the first time from the holotype in the Australian Museum (No. B.9955), three inches in standard length.

D.i., 11; A.3, 17; V.7. Ventral scutes, 12 + 8.

Locality.—Strickland River, New Guinea (freshwater).

Not reported from Australia.

FIMBRICLUPEA, *gen. nov.*

Orthotype, *Fimbriclupea dactylolepis*, *sp. nov.*

Mouth terminal. Maxillary broadly crescentic with supplemental bones. No ossified ligament. No symphyseal notch. Operculum with only one upright groove. Cheeks venulose. Teeth wanting. Gill-rakers numerous, the upper ones not overlying the lower.

Habit similar to that of *Harengula* and *Sardinella* of authors.

Body with markedly fimbriate scales, with some of the transverse grooves not meeting at middle. About 40 transverse rows of scales. Belly cultrate. Scutes along ventral surface, no modified scales or scutes along back.

Dorsal fin without produced rays, its origin nearer snout than caudal fin. Anal fin short. Last two anal rays enlarged. Ventrals present, below the dorsal fin.

Includes *Clupea (Harengula) sundaica* and *gibbosa* Bleeker, the "*fimbriata*" of authors (*non* Cuv. & Val. and not *Clupea fimbriata* Bowdich).

FIMBRICLUPEA DACTYLOLEPIS, *sp. nov.*

(Fig. 5.)

D.3, 16; A.17 + 2; V.i., 7; C., 18. Sc. 41. Tr. 11. Fifteen predorsal scales and 16 + 12 abdominal scutes.

Head (25 mm.) nearly 4, depth of body (26), 3.8 in standard length (99). Eye, 7 mm.; interorbital, 5; snout, nearly 8; maxillary, 10; depth of caudal peduncle, 9 mm.

Head longer than high, slightly shorter than depth of body. Maxillary reaching to below front of eye. No symphyseal incision. Jaws, palate and tongue edentulous. Sides of opercles densely venulose. One opercular groove anteriorly. More than 50 gill-rakers on lower limb of first branchial arch.

Form rather elongate, depth nearly 4 in standard length. Body-thickness less than $2\frac{1}{2}$ in depth. Ventral profile more convex than dorsal profile.

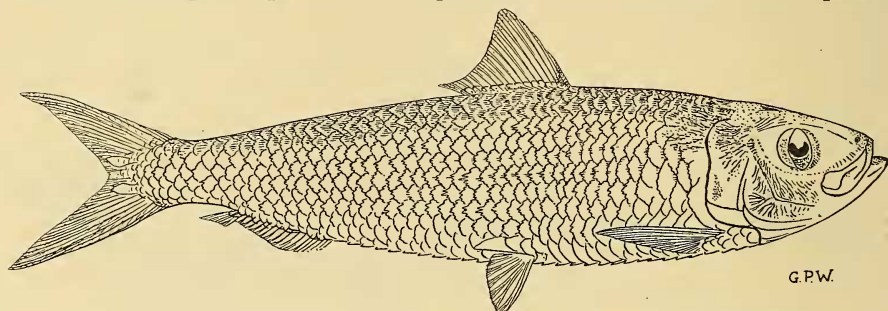


Fig. 5. Fringe-scaled Pilchard, *Fimbriclupea dactylolepis*. Holotype.

Body covered with large scales with the margins strongly fimbriate, especially at apex. Exposed surface of scale pitted or perforated. Distal transverse groove continued across scale, but three proximal grooves interrupted mesially. Belly compressed, scutes largely covered by flank-scales. No auxiliary scales. Enlarged caudal scales partly covered by smaller ones. Depth of caudal peduncle less than 3 in head.

Dorsal fin originating nearer snout than base of tail.

Anal fin with last two rays enlarged. Pectorals almost reach level of dorsal fin. Ventrals below front half of dorsal.

Colour, after long preservation in alcohol, dark bluish grey along back, without spots. Sides and belly silvery. Fins yellowish white. Bases of anterior dorsal rays notably dark brownish. Some infuscation of dorsal and caudal fins distally, but no conspicuous black tips to caudal.

Described and figured from the holotype, my largest specimen 99 mm. in standard length or five inches overall. Smaller paratypes are relatively deeper in body, the ventral profile being more strongly arched.

Locality.—Point Sampson, north-western Australia (Fisheries Department, Perth, 1914). Austr. Mus., Regd. No. I.13254.

This is the *Sardinella fasciata* of the Australian Check-List, not *Clupeonia fasciata* Cuv. & Val., 1847, from Bourbon, which has teeth on tongue and pterygoids. Also allied to the *Clupea (Harengula) sundaica* and *gibbosa* of Bleeker's "Atlas Ichthyologique" but differing in formulae.

FISCINA, *gen. nov.*

Orthotype, *Amblygaster posterus* Whitley.

This Western Australian pilchard differs from the genotypical *Amblygaster (clupeoides)* sufficiently to be separated under a distinct generic name.

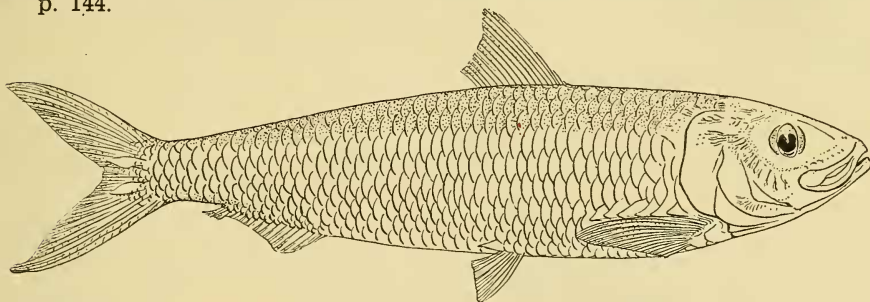
Key:—

- A. Maxillary reaching to below front margin of eye. 14 to 15 post-ventral abdominal scutes. 30 or more gill-rakers. Pectoral fin enlarged. Dorsal origin well forward. No scaly sheath to dorsal fin. Last two anal rays enlarged. *Fiscina*, gen. nov.
- AA. Maxillary not nearly reaching eye-level. 12 post-ventral abdominal scutes. Less than 30 gill-rakers. Pectoral fin small. Dorsal origin about half way between tip of snout and root of caudal. A scaly sheath on dorsal fin. Last anal rays not differentiated from others. *Amblygaster*.

FISCINA POSTERA (Whitley, 1931).

(Fig. 6.)

Amblygaster posterus Whitley, Rec. Austr. Mus., xviii., 4, June 29, 1931, p. 144.



G.P.W.

Fig. 6. Fremantle Pilchard, *Fiscina postera*. Holotype.

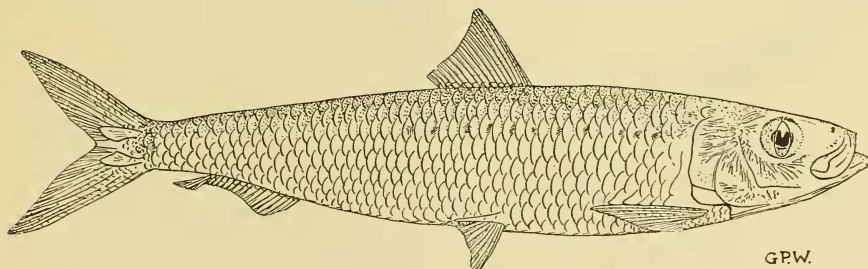
Here figured from the holotype of the species from Fremantle, Western Australia (Austr. Mus., Regd. No. I.12826).

SARDINOPS (FUSICLUPEA) DAKINI Whitley, 1937.

(Fig. 7.)

Sardinops dakini Whitley, Mem. Qld. Mus., xi., 1937, p. 114. Thursday Island, Queensland.

Here figured from a Murray Island example (Austr. Mus., No. I.11965), 183 mm. in standard length, which has D.3, 16; A.2, 15 + 2; P.18; V.i., 9.



G.P.W.

Fig. 7. Northern Pilchard, *Sardinops (Fusiclupea) dakini*.

Sc. 42. Tr. 11. Abdominal scutes, 17 + 12. Some teeth on palate but none on jaws. As there appear to be no auxiliary scales and the gill-rakers of the lower half of the first branchial arch are not overlain by the upper

ones, it is doubtful whether this species should be retained in *Sardinops*. It enters *Sardinella* as used by some authors, but the type of that genus is *aurita*, a very different Mediterranean species. From *Amblygaster*, it differs in having last anal rays enlarged. Under the circumstances, it seems best to propose the new subgeneric name *Fusiclupaea*, with *Sardinops dakini* as orthotype.

ESCUALOSA, gen. nov.

Orthotype, *Clupea macrolepis* Steindachner, 1879.

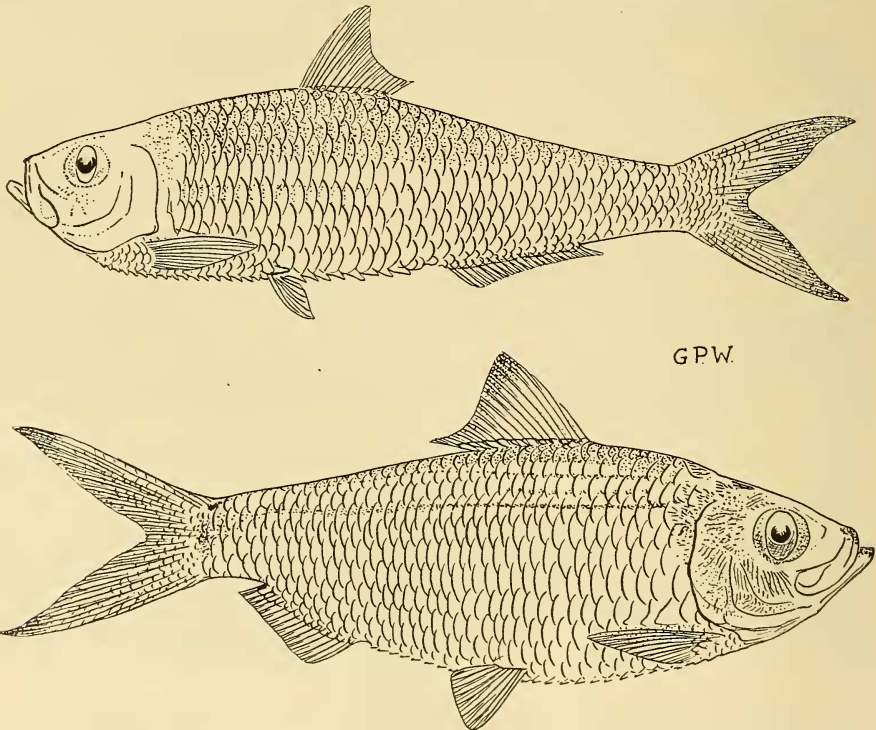
Maxillary reaching to below eye. Jaws subequal. Dentition obsolete or very little developed. Belly compressed, cultrate, with median scutes. Less than forty lateral scales. No auxiliaries. Transverse grooves on scales continuous. Dorsal fin normal, with about 17 rays, its origin nearer snout than root of caudal. Anal fin with 17 to 20 rays, the last not enlarged. Ventrals present, opposite or before level of dorsal origin.

Comes near the "*Clupea*" and "*Harengula*" of some authors' keys, but differs markedly in scale and fin-counts from the true genotypes of those genera.

ESCUALOSA MACROLEPIS (Steindachner, 1879).

(Figs. 8 & 9.)

I have seen and sketched the holotype of *Clupea macrolepis* in the Württembergische Naturaliensammlung, Stuttgart, Germany (No. 2292). It



Figs. 8 and 9. Deep Herring, *Escualosa macrolepis*. Upper figure (8), sketch of holotype of *Clupea macrolepis*; lower fig. (9), a Townsville specimen regarded as conspecific.

was evidently not a fully grown fish, being only 66 mm. in standard length or about $3\frac{1}{4}$ in. overall. Some of the scales were missing and I could only make out about 38 along the side and L. tr. 8 or 9; grooves extend across the middle of each scale. Nineteen preventral scutes plus eight large post-ventrals. No series of opercular grooves. Jaws toothless. A silvery lateral band. Caudal fin-tips black. For other characters, see Steindachner's description.

Locality.—Cleveland Bay, Queensland; Baron von Müller, 1877.

I identify as the same species some herrings collected at the same place (Townsville) by the late W. E. J. Paradiçe in 1924. These are Regd. Nos. IA. 2331-2 in The Australian Museum and one (IA. 2331) is here figured for comparison with my sketch of the holotype. It has D. ii/14-15; A. i/16-17. Head, 24 mm. Eye, 12. Depth of body, 32.5. Standard length, 91 mm. L. lat. circa, 36. The others show no important variation:—D. ii/14-15; A. ii., 18. Head, 26 and 24. Eye, 12 and 10. Depth, 35 and 31. Standard length, 99 and 86, and L. lat., 36 to 38. They differ from the type in having microscopic teeth in lower jaw, slightly deeper form and larger head, and ventral fins inserted slightly behind vertical of dorsal origin. These changes may be due to growth.

Family ENGRAULIDAE.

AMENTUM, *gen. nov.*

Orthotype, *Stolephorus commersoni* Lacépède, 1803.

Tropical Indo-Australian anchovies with the thorax compressed and bearing two to seven sharp-pointed scutes between pectoral and ventral fins. Maxillary not extending behind the gill-openings. Teeth small.

Anal fin below or behind level of middle of dorsal, or very little in front of same.

About 39 to 43 vertebrae.

Body translucent, with silvery lateral band. Scales thin, caducous.

This new genus is equivalent to *Stolephorus* Jordan and Seale (Bull. Mus. Comp. Zool., lxxvii., 1926, p. 377) which is not *Stolephorus* Lacépède, *sensu stricto* (genotype, *Atherina japonica* Houttuyn, fixed by Jordan and Gilbert, 1882), the latter genus replacing *Spratelloides*.

AMENTUM CARPENTARIAE (De Vis, 1882).

(Fig. 10.)

Engraulis carpentariae De Vis, Proc. Linn. Soc. N.S. Wales, vii., October 28, 1882, p. 320. Norman River, Gulf of Carpentaria. Earlier as a nomen nudum in Southern Science Record for August, 1882.

D. i., 15 or ii., 14; A. ii., 21; P., 12; V., 7; C., 19. Six strong ventral scutes.

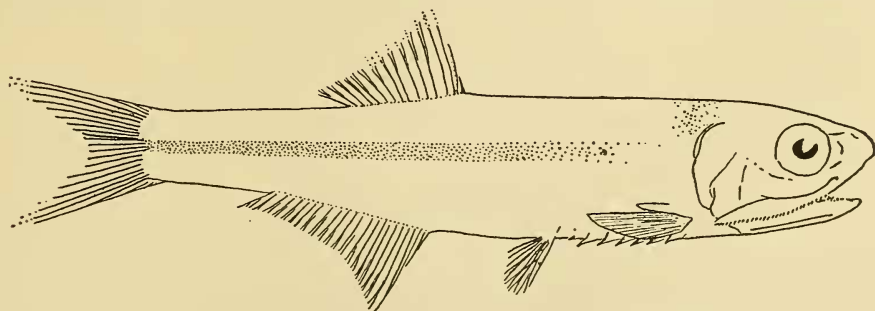


Fig. 10. Gulf Anchovy, *Amentum carpentariae*. Lectotype.

Maxillary produced to end of suboperculum, its teeth subequal. Snout shorter than eye.

Head (12 mm.) 3.8, depth before pectorals (9), 5.1 in standard length (46). Eye, 3.5 mm.; snout, 3; pectoral, 6.5?; base of anal, 10.5 mm.

Ventral fins nearer anal than base of pectorals. Anal originating before level of middle of dorsal fin.

Colour now faded, but described by De Vis as "Orange, with a rather broad, silvery streak. Head pale, silvery. A large dark spot on each side of occiput with a few black dots around it. Black dots along the spine and on each interneural joint of the dorsal and anal. Caudal punctated with black, others fine white, immaculate".

Described and figured from a cotype of De Vis' species, a little over 2 inches in total length. Some fin-tips and scales missing in my specimen. Colour faded, silvery lateral band present.

Locality.—"Cape York, Queensland," by exchange with the Queensland Museum in 1886. Austr. Mus., Regd. No. I.377, part. Doubtless one of De Vis' cotypes from the Norman River.

Stolephorus waitei Jordan and Seale, differs in proportions of head, anal fin, etc., but may be the adult of this species.

AMENTUM DEVISI, *sp. nov.*

(Fig. 11.)

D.ii., 13; A.ii., 18; P., 13; V., 7; C., 19. Five ventral scutes.

Maxillary produced to a little beyond preopercular ridge, provided with several enlarged recurved teeth among the others distally.

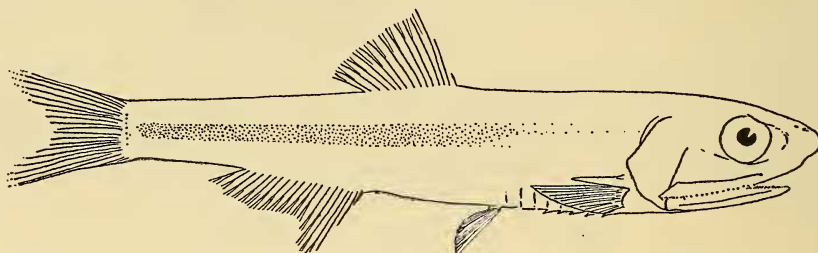


Fig. 11. De Vis' Anchovy, *Amentum devisi*. Holotype. Enlarged to same scale as figure 10.

Snout as long as eye, considerably overhanging mandible.

Head (12), 3.6; depth before pectorals (7.75), 5.6 in standard length (44). Eye, 3.25 mm.; snout, 3.25; pectoral, 6.25; ventral, 4; base of anal, 8 mm.

Ventral fins midway between pectoral base and anal. Anal fin originating below termination of dorsal fin.

Described and figured from a "Cape York" specimen, 2 inches long, mixed with *carpentariae* De Vis, and from the same source. Austr. Mus., Regd. No. I.377, part.

Family STERNOPTYCHIDAE.

ARGYROPELECUS (STERNOPTYCHIDES) AMABILIS (Ogilby, 1888).

(Fig. 12.)

Sternoptychides amabilis Ogilby, Proc. Linn. Soc. N.S. Wales (2), iii., 1888, p. 1313. Lord Howe Island. Type figured by McCulloch, Rec. Austr. Mus., xiv., 1923, p. 118, pl. xiv., fig. 3.

Specimens recently obtained in New South Wales waters by the C.S.I.R. investigators with the "Warreen" (Station 104/38.N.200) constitute a new record for Australia proper. These specimens differ somewhat from the Lord Howe Island type and from the New Zealand *intermedius* Clarke (Trans. N. Zeal. Inst., x., May, 1878, p. 244, pl. vi., Hokitika), notably in having two well-developed pubic spines, differently shaped dorsal stripe, shape of ventral profile and in having a reticulated area in gill-slit.

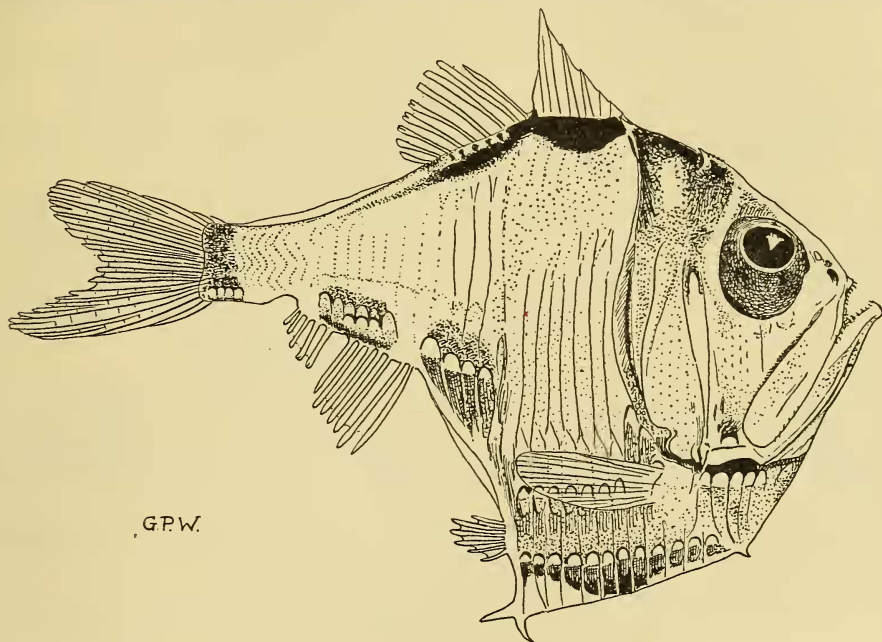


Fig. 12. Hatchet Fish, *Argyropelecus (Sternoptychides) amabilis*.
Immature.

Here figured from a specimen (Austr. Mus., Regd. No. IA.8024), 22 mm. in standard length. It has D., 9; A., 7/5; P., 9; V.i., 5, and photophores 12 + 4 + 6 + 4.

Locality.—About 20 miles east of Port Hacking, N.S. Wales; netted.

Family PRISTIGASTERIDAE.

Genus *NEOSTEUS* Norman, 1923.

NEOSTEUS SCHLEGELII (Castelnau, 1873).

(Fig. 13.)

Meletta schlegelii Cast.; *Clupea schlegelii* and *Neosteus ditchela* of Australian lists.

Castelnau's species has not been recognized since first described, but a 6 inch specimen of "*Neosteus ditchela*" from the Sir Edward Pellew Group, Gulf of Carpentaria, in the Australian Museum (IA.2555) appears to be conspecific and is figured here. The large number of anal rays, reduced ventral fins, and prominent lower jaw are characteristic. The specimen agrees well with Castelnau's description, except that the origin of its ventral fin lies approximately below that of the dorsal and the tip of the pectoral

fin; the head goes about $3\frac{1}{2}$ instead of 4 in standard length and there are 35 anal rays instead of about 29, but it may be that Castelnau had no microscope to aid him in counting or he may have had a dried specimen. The presence of a toothed bone between the intermaxillary and maxillary shows that my specimen is a *Neosteus*. It also has the following characters: D., 4/14; A., 3/35; P., 2/17; V., 7; C., 15; Sc., circa 34 (some missing in specimen); L. tr., 12; about 7 predorsal scales, 19 plus 9 abdominal scutes and at least 22 gill-rakers below. Fine striae on suborbital and operculum.

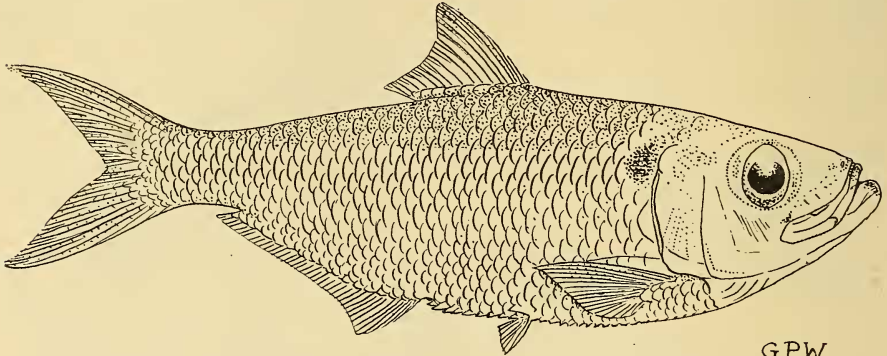


Fig. 13. Ditchelee, *Neosteus schlegelii*.

Fine teeth in jaws, along palatines and edge of maxillae. A dark humeral blotch. A copepod parasite on roof of mouth and a large isopod in gill-slit.

Our *schlegelii* differs from the Indian *N. ditchela* in having snout shorter than eye-diameter, fewer anal rays, fewer and larger scales.

Family CHANIDAE.

CHANOS SALMONEUS (Bloch & Schneider, 1801).

(Fig. 14.)

Here illustrated from a small specimen, 215 mm. in standard length, from Bedwell Point, Northern Territory; Mr. Melbourne Ward (Austr. Mus., Regd. No. IA.7681), caught in June, 1938. The small, broad, horseshoe-

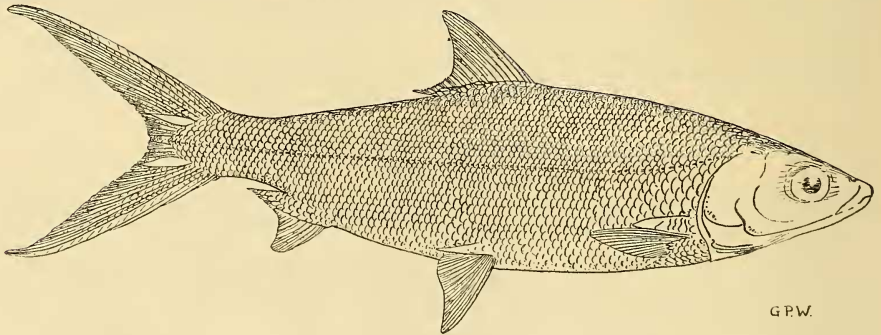


Fig. 14. Milk Fish, *Chanos salmoneus*.

shaped mouth has no teeth. D.2, 12 (last thick); A.2, 10; P.2, 16; V.i., 12; L.lat., 91. L. tr., 12/1/13. Predorsal scales 27.

Family ALEPOCEPHALIDAE.

ROULEINA EUCLA, *sp. nov.*

Aleposomus (Rouleina) squamilaterus McCulloch, Biol. Res. Endeavour, v., 4, June 8, 1926, p. 163, pl. xlv., fig. 1. Not *Xenodermichthys squamilaterus* Alcock, 1898, from off the Andaman Islands.

A geographical species whose numerical features do not agree with the typical *squamilaterus* of Alcock.

PRODITOR, *gen. nov.*

Orthotype, *Alepocephalus andersoni* Fowler (Proc. Acad. Nat. Sci. Philad., lxxxv., 1933, p. 246, fig. 8) from the Philippines.

I take this opportunity of supplying a new generic name to replace *Normania* Parr (Bull. Bingham Oceanogr. Coll., iii., 7, August, 1937, p. 9), twice preoccupied. *Proditor andersoni* is extra-Australian.

Family GONOSTOMATIDAE.

NAROOMA BENEFICA Whitley, 1935.

(Fig. 15.)

Narooma benefica Whitley, Rec. Austr. Mus., xix., 4, September 19, 1935, p. 215. Narooma, N.S.W.

Here figured from the holotype.

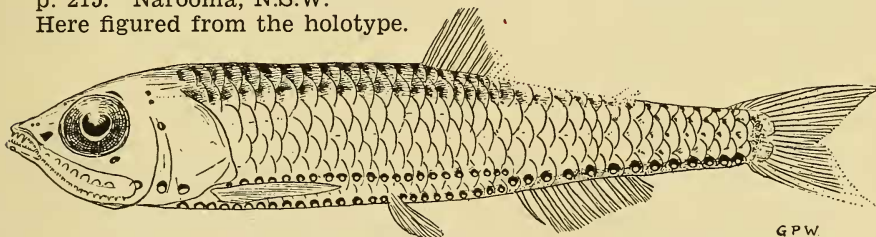


Fig. 15. Lantern Fish, *Narooma benefica*. Holotype.

Narooma benefica is allied to the genera *Poweria* Bonaparte, 1840 (*Vinciguerria* of authors and of Norman's recent revision, Discov. Rept., ii., 1930, p. 290) and *Zalarges* Jordan & Starks, 1896.

My species has a pair of small photophores at the mandibular symphysis. Scales about 29.

Family PLOTOSIDAE.

PARAPLOTOSUS ALBILABRIS (Cuv. & Val., 1840).

Plotosus albilabris Cuvier & Valenciennes, Hist. Nat. Poiss., xv., 1840, p. 427; ed. 2, p. 316. Batavia.

Plotosus microceps Richardson, Zool. Voy. Erebus and Terror, Fish, 1845, p. 31, pl. xxi., figs. 4-7. N.W. coast of Australia.

Copidoglanis longifilis Macleay, Proc. Linn. Soc. N.S. Wales, vi., 2, September 12, 1881, p. 207. Long Island, Torres Strait.

Plotosus laticeps, *Copidoglanis labiosus* and *labrosus*, *C. levis*, and *C. curtus* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10; Great Barrier Reef, 1893, pp. 298 and 370. Queensland. *Nomina nuda*.

A common catfish from Queensland (where I have collected it at Lindeman Island), around north Australia to Western Australia, south to Fremantle. On comparing Port Darwin examples with Richardson's *Plotosus microceps*, I am of the opinion that that species is a synonym of *albilabris*. Ogilby's genus *Endorrhis* becomes a synonym of *Paraplotosus* Bleeker. Saville-Kent's troublesome *nomina nuda* may be formally disposed of by also being relegated to this synonymy.

In fact it may be as well to dispose of all Saville-Kent's *nomina nuda* here to avoid further trouble. For references, see Austr. Mus. Mem., v., 1929.

<i>Clupea profundis, torresiensis</i> and <i>ranelayi</i>	= <i>Harengula punctata stereolepis.</i>
<i>Plotosus laticeps</i>	= <i>Paraplotosus albilabris.</i>
<i>Copidoglanis labrosus</i> and <i>labiosus</i>	= <i>Paraplotosus albilabris.</i>
<i>Copidoglanis levis</i> and <i>laevis</i>	= <i>Paraplotosus albilabris.</i>
<i>Copidoglanis curtus</i>	= <i>Paraplotosus albilabris.</i>
<i>Belone staigeri, tyrannus</i> and <i>vorax</i>	= <i>Lhotskia macleayana.</i>
<i>Sphyraena dentatus</i> = <i>S. strenua</i>	= <i>S. obtusata.</i>
<i>Caranx filigera</i>	= <i>Citula oblongus auriga.</i>
<i>Chorinemus maculosus</i>	= <i>Scomberoides lysan</i>
<i>Pomatomus tubulus</i>	= <i>P. pedica.</i>
<i>Equula spiniceps</i>	= <i>Equula decora.</i>
<i>Dules produlus</i>	= <i>Herops munda.</i>
<i>Serranus armatus</i>	= <i>Epinephelides armatus.</i>
<i>Serranus rubriniger</i>	= <i>Epinephelus corallicola.</i>
<i>Serranus subniger</i>	= <i>Epinephelus corallicola.</i>
<i>Mesoprion aurivittatus</i>	= <i>Glabrilutjanus marshalli*</i> = juv. of <i>Paradicichthys vene-</i> <i>natus</i> Whitley, 1930.
<i>Mesoprion helenae</i>	= <i>Glabrilutjanus marshalli*</i> = juv. of <i>Paradicichthys vene-</i> <i>natus</i> Whitley, 1930.
<i>Diagramma amabile</i>	= <i>Plectorhinchus roughleyi.</i>
<i>Diagramme amicium</i>	= <i>Plectorhinchus roughleyi.</i>
<i>Pristipoma nigrorubrum</i>	= <i>Pomadasys hasta.</i>
<i>Pristipoma variegatum</i>	= <i>Pomadasys hasta.</i>
<i>Therapon carbo</i>	= <i>T. carbo</i> McCulloch and Ogilby, 1916.
<i>Therapon ater</i>	= <i>T. carbo.</i>
<i>Therapon cavifrons</i>	= <i>T. carbo.</i>
<i>Therapon maculosus</i>	= <i>T. unicolor.</i>
<i>Lethrinus flavescens, lacrymans,</i> <i>margaritifer, regius, and</i> <i>viridis</i>	= <i>Lethrinus viridis</i> Whitley.
<i>Scatophagus brunneus</i>	= <i>Selenotoca aetatevarians.</i>
<i>Scatophagus chameleon</i>	= <i>Selenotoca aetatevarians.</i>
<i>Scatophagus semistrigatus</i> [<i>semistrigigena</i> Innes]	= <i>Selenotoca aetatevarians.</i>
<i>Teuthis mixtus</i>	= <i>Amphacanthus nebulosus.</i>
<i>Teuthis vitticauda</i>	= <i>Amphacanthus nebulosus.</i>
<i>Neorhombus ocellatus</i>	= <i>Pseudorhombus arsius.</i>

*Mr. T. C. Marshall, of the Queensland Museum, has discovered by examining many specimens that "*Lutjanus nematophorus*" or *Glabrilutjanus marshalli* Whitley (Rec. Austr. Mus., xviii., 1932, p. 338) is the young of the Chinaman Fish, *Paradicichthys venenatus* Whitley (Mem. Qld. Mus., x., 1930, p. 13, pl. i., fig. 1), the long fin-rays of the young break off as it becomes adult. Thus *Glabrilutjanus* Fowler (Bull. U.S. Nat. Mus., 100, xi., 1931, p. 88) = *Paradicichthys*.

<i>Ammotretis ovalis</i>	= <i>Ammotretis rostratus</i> .
<i>Synaptura armata</i>	= <i>Synaptura nigra</i> .
<i>Synaptura inermis</i>	= <i>Synaptura nigra</i> .
<i>Paraplagusia brevisrostris</i>	= <i>P. unicolor</i> .
<i>Neodax nebulosus</i>	= <i>Olisthops cyanomelas</i> .

Family TACHYSURIDAE.

Genus TACHYSURUS Lacépède, 1803.

PARARIUS, *subg. nov.*Orthotype, *Arius proximus* Ogilby, as identified and figured below.Also includes *Arius graeffei* Kner and Steindachner.

Casque weakly granular, mostly concealed by skin. Fontanelle lanceolate. Eyes with margins free, situated behind level of mouth. Two pairs of nostrils, the posterior with large flap. Villiform teeth on jaws and palate, the latter not extending backwards as in *Netuma*. Six barbels. Gill-membranes united across isthmus. Interdorsal space greater than length of head. Adipose dorsal fin small, over posterior part of anal base (in typical *Tachysurus* it is described as being similar in size and form to the anal). Anal margin concave (not convex as in *Hexanematichthys*), the fin having fifteen rays (instead of about 20 as in *Pimelodus arius*, the tautotype of *Arius* Cuv. & Val.).

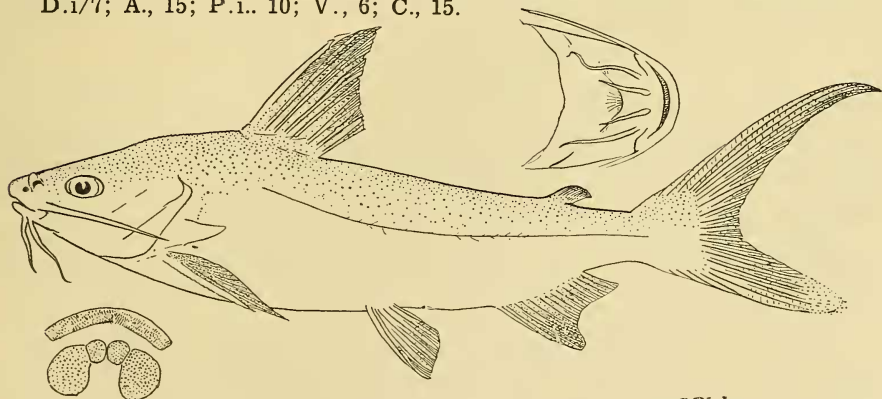
TACHYSURUS (PARARIUS) PROXIMUS (Ogilby).

(Fig. 16.)

? *Arius graeffei* Kner & Steindachner, Sitzungsber. Ak. Wiss. Wien., liv., 1866 (1867), p. 383, fig. 12. "Samoa".

Arius proximus Ogilby, Proc. Linn. Soc. N.S. Wales, xxiii., December, 1898, p. 280. Port Darwin.

Arius (Tachysurus) graeffei Partridge & Whitley, Mem. Qld. Mus., ix., 1927, pp. 80 and 97. Sir Edward Pellew Group.
D.i/7; A., 15; P.i. 10; V., 6; C., 15.



GPW

Fig. 16. Sea Catfish, *Tachysurus (Pararius) proximus*.
Teeth from a second specimen.

Head (55 mm.) 4, depth (49) $4\frac{1}{2}$ in length to end of middle caudal rays (225). Width of head (42) subequal to its height. Eye, 11.5 mm.; inter-orbital, 29; snout, 16; width of mouth-opening, 25; maxillary barbel, 39; mandibular barbel, 28; mental barbel, 20; predorsal length, 75; interdorsal, 70; pectoral spine, 36; depth of caudal peduncle, 15.

Eye with free lid. Interorbital broad and flat. Mouth well before level of eye. Premaxillary teeth in a continuous band, emarginate posteriorly and obliquely truncate at extremities. Mandibular band divided, tapering from symphysis backwards, vomerine and palatine teeth villiform, well-developed, deciduous, in contiguous patches as figured.

Maxillary barbel reaching gill-opening at opercular flap.

Mandibular barbel reaching gill-opening at isthmus; mental barbels short. Gill-membranes united across isthmus at oblique angle.

Cranial and nuchal shields with few rounded granules nearly all of which are concealed by the smooth skin on top of head. Predorsal shield small, hidden. Fontanelle inconspicuous, longer than eye, tapering posteriorly; occipital groove deep and long. Opercles smooth.

Lateral line obsolete below middle of dorsal fin and without anterior granulation. A small axillary slit. Predorsal length about one-third length to end of middle caudal rays.

Dorsal spine granular in front, weakly serrated behind, equal in length to maxillary barbel. Adipose fin moderate, much longer than high. Anal length subequal to its height, about half head. Ventrals truncate, equal to interorbital, and not reaching anal. Pectoral spine more strongly serrate than dorsal. Upper caudal lobe (longest ray, 67 mm.) longer than head. No produced fin-rays.

Iridescent blue-grey on back, silver on belly. Pupil black.

Iris coppery. Fins greyish; adipose dorsal darker.

Described and figured from a small specimen (Austr. Mus., Regd. No. I.13211), nearly 11 inches overall, from Broome.

New record for Western Australia.

During my stay at Broome in July, 1939, I found this catfish common on the mudflats near the jetty. The specimen described above has been in the Australian Museum for some years.

Details of dentition, cranial shields and fontanelle from a skull of another Broome specimen.

Family OPHICHTHYIDAE.

YIRRKALA, *gen. nov.*

Orthotype, *Y. chaselingi*, *sp. nov.*

A genus of very elongate eels with tail-tip bare, gill-slits approximate and ventrad, with jugostegalia developed. More than one row of vomerine teeth. Dorsal fin low, originating just behind head. Anus about half-way along fish. No pectoral or caudal fins. Coloration uniform.

Apparently allied to the Indian *Sphagebranchus* and Mediterranean *Caecula*, but differing in having dorsal and anal fins present. *Dalophis* is a Mediterranean genus only superficially similar. *Anguisurus* and *Lamnostoma* have white ornamentation on nape.

Besides the genotype, this new genus may include *Dalophis anceps* Cantor (Journ. Asiatic Soc. Bengal, xviii., 1849, p. 1309; Cat. Malay. Fish., 1850, p. 327, pl. vi., figs. 1-4) = *Yirrkala anceps*, from Penang. Also *Sphagebranchus lumbricoides* Bleeker (Ned. Tijdschr. Dierk., ii., 1864, p. 46) = *Yirrkala lumbricoides*, from Timor.

YIRRKALA CHASELINGI, *sp. nov.*

(Fig. 17.)

Head (32 mm.) nearly 19 in total length (c. 607 mm.) or about 10 in preanal length. Interorbital (2.5) 2 in the acutely pointed snout (5). Lower jaw much shorter than upper and with slight ascending ramus. Acute fangs on jaws and palate, and in more than one row along part of

vomer. Gape about one-third of head. Anterior nostrils in short tubes, posterior ones large and opening downwards along upper lip. Eye small, adnate to sides of head. Several pores around eyes and chin. No barbels. Gill-openings low, latero-ventral, behind the twenty or so jugostegalia which reach behind the head.

Body very elongate, its depth about 76 in total length, broadest anteriorly, not swollen towards end of tail, and subcylindrical. Skin smooth, overlying the continuous lateral line. Vent large, just before middle of fish. Dorsal fin low, commencing just behind top of head; anal similar, originating about half-way along fish; both fins of many short rays, ending before the free hard-pointed tail-tip. No pectoral, ventral, or caudal fins.

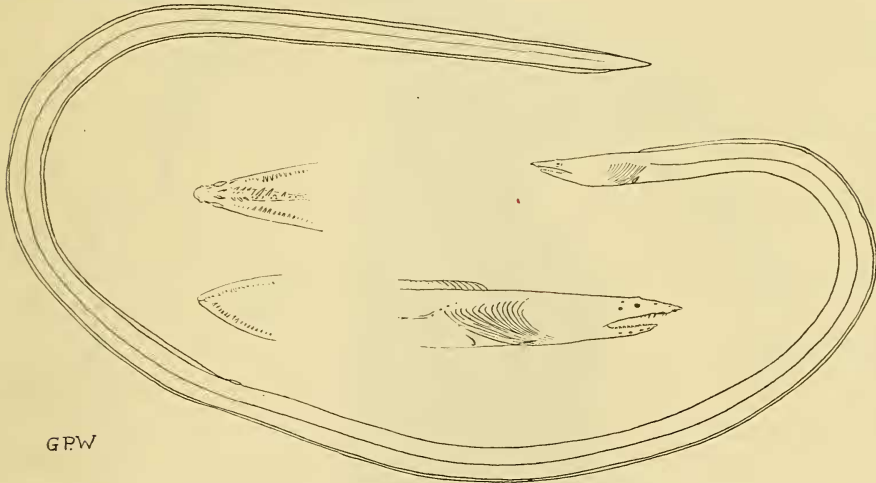


Fig. 17. Chingilt, *Yirrkala chaselingi*. Holotype.

Colour, in alcohol, fairly uniform reddish brown. Lateral line yellow. Tip of snout blackish.

This species differs from *anceps* and *lumbricoides* in position of dorsal origin, proportion of head to trunk, in having vomerine teeth largest, and other details of proportions and dentition.

Described and figured from the holotype, the largest of three specimens up to about 607 mm. or two feet long. Austr. Mus., Regd. No. IB.481.

Locality.—Yirrkala, near Caledon Bay, western shore of the Gulf of Carpentaria, Northern Territory of Australia; presented by the Rev. W. S. Chaseling, in whose honour this novel species is named.

Family ALEPISAUROIDAE.

ALEPISAUROUS RICHARDSONII Bleeker, 1855.

(Fig. 18.)

Alepisaurus richardsonii Bleeker, Verh. K. Akad. Wetensch. Amst., ii., 1855, pp. 2 and 10. Based on *Alepisaurus* sp. Richardson, Zool. Voy. Erebus and Terror, Fishes, 1845, p. 34, pl. xxii., figs. 1-4. Van Diemen's Land.

Alepidosaurus ferox Gunther, Cat. Fish. Brit. Mus., v., 1864, p. 421 (Tas. ref. only). *Id.* Hutton, Trans. N. Zeal. Inst., xxxiv., 1902, p. 197, pl. ix. (Wellington, N. Zealand). Not *Alepisaurus ferox* Lowe, 1833, from Madeira.

Plagyodus or *Alepisaurus ferox* of Australian authors.

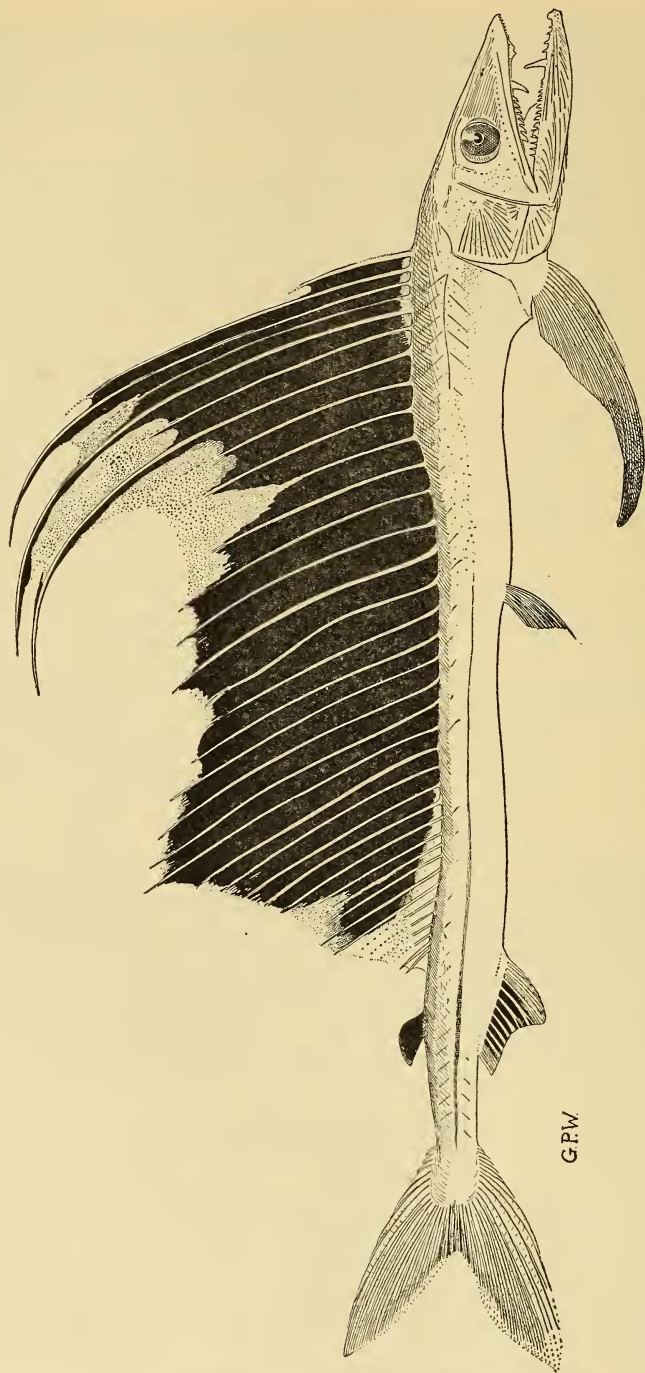


Fig. 18. Lancet Fish, *Alepisaurus richardsonii*.

The remarkable and little known Lancet Fish has been recorded from New South Wales, Tasmania, and New Zealand, whence some skulls have been figured. I now give an illustration of a fairly complete specimen from Lord Howe Island, from which place the species (whose trivial name, proposed by Bleeker, has been generally overlooked) has not been recorded before.

Br. 6. D., 37; A., 15; P.i., 13; V., 9; C., 18 et lat. brev.

Head (140 mm.) 4.8, depth at dorsal origin (76) 8.8 in standard length (675).

Eye, 26 mm., snout nearly 60, premaxillary 103, longest dorsal ray about 300 mm.; pectoral, 160; ventral, 50.

The teeth, of various sizes, are probably deciduous or replaced during the fish's life-time, which would account for disparities between my specimen and published illustrations. Mine has only one large canine on each side on the maxillary and dentary, followed by about seven compressed canines in upper jaw and about eleven in lower.

The extensive premaxilla has a margin of small, spaced teeth and there are some fairly large teeth near front of lower jaw. Some teeth may be missing.

Opercles and jawbones radiated. Bones of skull papery. Gill-membranes free. At least twenty short spiny gill-rakers on lower part of first gill-arch. Body naked, unusually attenuated.

Fins somewhat broken, especially the first dorsal. First ray of dorsal and pectoral fins serrated. Caudal forked, apparently without produced upper lobe.

Colour (in alcohol): Dark brownish to blackish on back, adipose dorsal, and on fin membranes. Some dots on side of head and bdy. Ground colour yellowish. Eye bluish. Teeth translucent yellowish.

Evidently a predaceous fish whose physiognomy resembles that of the Barracouta, Hairtail, Sea Pike and Frostfish by convergence.

Described and figured from a specimen (Austr. Mus., Regd. No. IA.1284) 675 mm. in standard length or about 31 inches overall. Probably grows much larger.

Locality.—Lord Howe Island. Presented by Mr. Robert Baxter, who said it feeds on "Nautilus [*Argonauta*] shell, fish and all".

Family AULOSTOMIDAE.

AULOSTOMUS CHINENSIS (Linné, 1766).

(Plate xxx., fig. 19.)

Here illustrated from a painting made by the late A. R. McCulloch of a Lord Howe Island example in 1902. This species is notoriously variable in colour; McCulloch's painting is almost uniform rich orange with blackish blotches on maxilla, ventral base and upper part of caudal fin; a blackish bar along dorsal and anal bases; indistinct darker stripes along back (compare Waite, Rec. Austr. Mus., iii., 1900, p. 198). Since local specimens do not exactly agree with Bloch's plate 388 they may be given a new sub-specific name, *waitei*. Holotype in Austr. Mus., Regd. No. I.5370.

Family SYNGNATHIDAE.

HIPPOCAMPUS ANGUSTUS Gunther, 1870.

(Plate xxx., fig. 20.)

Herewith is figured, about natural size, the type of *Hippocampus subelongatus* Castelnau, 1873, from the Fremantle district, Western Australia, in the Paris Museum. I am of the opinion that *H. subelongatus* = *elongatus* Castelnau, 1873 = *angustus* Gunther, 1870.

H. hippocampus and *H. hystrix* are extralimital species which have been recorded from Queensland, doubtless on the basis of some *H. dahli* Ogilby, 1908.

Also *H. bleekeri* Fowler, 1908 = *agnesae* Fowler, 1908 = *graciliformis* McCulloch, 1911 = *Macleayina abdominalis* (Lesson, 1827).

HIPPOHYSTRIX, *gen. nov.*

Orthotype, *Hippocampus spinosissimus* Weber, 1913 = *Hippohystrix spinosissimus*.

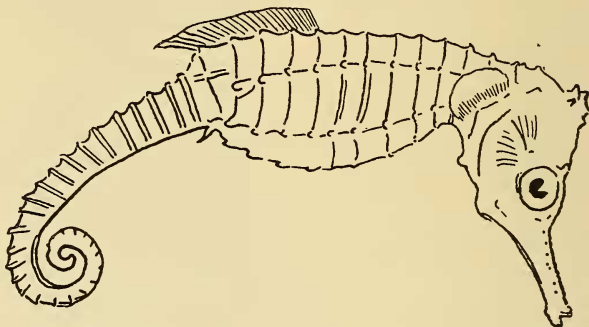
A new generic name is provided for this very spiny Queensland species, with D. 17, rings 11 + 34, and snout equal to postorbital.

MACLEAYINA PLANIFRONS (Peters, 1877).

(Fig. 21.)

Here figured from the holotype of *Hippocampus planifrons* from Naturaliste Channel, No. 9387 of the "Gazelle" collection, in the Zoologisches Museum der Universität, Berlin, where I examined it in November, 1937.

Fig. 21. Sea Horse,
Macleayina planifrons.
Holotype.



The coronet has five spines, the two anterior ones short and blunt; the supraocular spine is granulated. D. 23 or 24, on raised base. Rings, 12 or 13 + 30 and some obsolete ones towards the tip of tail.

Length (curled) 43 mm.

HIPPICHTHYS MARGARITIFER (Peters, 1869).

(Fig. 22.)

Syngnathus margaritifer Peters, Monatsb. Akad. Berlin, 1868 (1869), p. 457, Sydney.



Fig. 22. Pipefish, *Hippichthys margaritifer*.

Here illustrated from a specimen, "M. G. Bowen, 4982", in the Hamburg Museum.

Standard length, 146 mm.

Locality.—Bowen, Queensland; ex Museum Godeffroy.

ICHTHYOCAMPUS GALEI Duncker, 1909.

(Fig. 23.)

Here figured from the lectotype of the species, the smaller of two females in the Hamburg Museum, where Dr. Georg Duncker and Fraulein Erna Mohr assisted me in working on pipefishes in 1937.

The median ventral crista is present. Operculum without keel. Inferior and superior cristae of trunk continuous with those of tail; median



Fig. 23. Pipefish, *Ichthyocampus galei*. Lectotype.

ones obsolescent below dorsal fin. No spines on posterior tail-rings.

Standard length, 47 mm.

Locality.—Freycinet's estuary, Shark's Bay, 7 to 11 metres; W. Michaelsen, Hamburg Mus., No. 11521.

Since visiting Europe I have dredged in Shark's Bay, Western Australia, and obtained further specimens.

Genus *FESTUCALEX* Whitley, 1931.

Festucalex Whitley, Austr. Zool., vi., 1931, p. 312. Orthotype, *Syngnathus cinctus* Ramsay, 1882.

FESTUCALEX CINCTUS (Ramsay, 1882).

(Plate xxxi., fig. 24.)

Here figured from a specimen from the type-locality; Port Jackson, New South Wales.

Family *NANNATHERINIDAE*.

NANNATHERINA BALSTONI Regan, 1906.

(Fig. 25.)

Here figured for the first time from a sketch of the holotype (37.5 mm. in standard length) which I was courteously allowed to examine in the British Museum (Natural History) by Dr. C. Tate Regan.

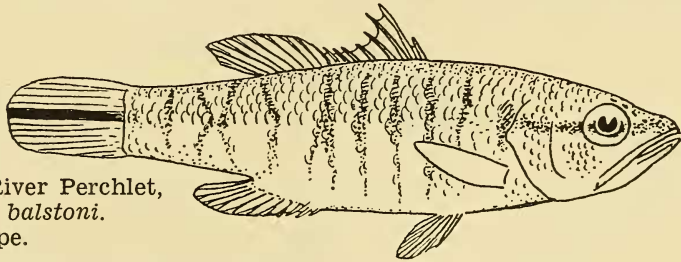


Fig. 25. King River Perchlet, *Nannatherina balstoni*. Holotype.

Locality.—King River, Western Australia.

Family *BELONIDAE*.

DJULONGIUS GROENERI (Klunzinger, 1879).

(Fig. 26.)

The accompanying sketch, made in Stuttgart, shows the holotype, No. 2601, from North Australia, about 534 mm. in standard length.

The holotype of *Belone groeneri* Klunz. is No. "2601, P. Darwin, N. Australien. v. Müller, '79". It has become very distorted by long preservation in a bottle, so the following measurements are approximate:—Head,

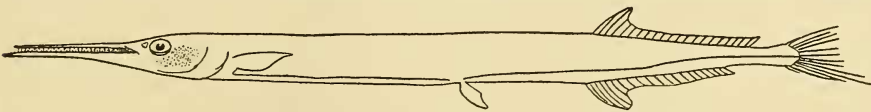


Fig. 26. Long Tom, *Djulongius groeneri*. Holotype.

from lower jaw, 155 mm. Snout to ventral fin, circa 310; to origin of anal, 395; to end of anal, 484. Standard length, 534. Total length, over 583 mm. Depth of body, 36? Depth of head, 30. Eye, 16. Pectoral, 44, slightly longer than ventrals. Depth of caudal peduncle, 12. Tip of lower jaw to eye, 99. Gape of lower jaw, 90; of upper, 84. Interorbital, 24. Dorsal origin little behind anal. D. 21? and A. 20 rays.

Radiating striae on each side of sunken naked interorbital area, rugose. Some scales forward of interorbital region. Teeth erect or sloping slightly forwards. About 17 rows of cheek-scales. Opercles naked. No gill-rakers, the anterior surface of the branchial arch villose to touch. Body-scales very small and numerous; those of lateral line scarcely forming a keel. Caudal peduncle compressed.

Belone gavaloides Castelnau, 1873, from near Fremantle, Western Australia, may be conspecific, but is described as having eye 2 in interorbital and 23 anal rays.

Family EXOCOETIDAE.

EXONAUTES ROBUSTUS (Gunther, 1866).

(Fig. 27.)

The accompanying figure was prepared from the holotype of *Exocoetus robustus* in the British Museum (Natural History), from "Australia".

D., 14; A., 10; P., 15; V., 6 (first 2 modified); C., 15. Predorsal scales probably less than thirty.

About 50 lateral line scales of which more than thirty are post-ventral. Pectoral fin (216 mm.) 1.4 in standard length (313), not quite reaching root of tail; dusky with median light area; 2nd ray branched. Fifteen gill-rakers on lower half of first branchial arch. Jaws toothed. Ventrals reaching beyond first few anal rays, plain in colour; their origin is nearer nostril than base of tail; first two rays flattened anteriorly. The specimen

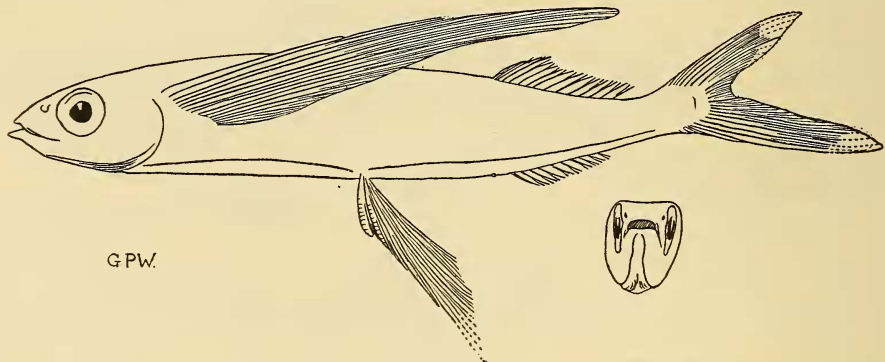


Fig. 27. Flying Fish, *Exonautes robustus*. Holotype. Also front view of face.

is very old and bent so as to make measurement difficult. The total length is over 15 inches but tips of caudal are broken. The standard length is 315 mm. and the following are the percentages, following Bruun's system, of various dimensions in the standard length:—Head (65 mm.), 21.2%; snout (19), 6%; eye (23), 7.3%; interorbital (22), 7%; pectoral (216), 68.5%; ventral (104), 33%; predorsal length (222), 70.4%; breadth of body (44), 13.9%; depth of body (55), 17.4%; height of dorsal (25), 7.9%; preventral length (circa 65 mm. on left side), 20.6%, or (circa 75 mm. on right side), 23.8%; and preanal length (circa 222), about 70.4% of standard length.

Gunther's species is not *altipennis* Cuv. & Val. It may be a subspecies of *katoptron* Bleeker (published about the same time as *robustus*) from Sumatra, but I retain the name *robustus* for the (south-western?) Australian fish, of which I have seen Fremantle specimens.

Exocoetus robustus Baird (Science, viii., July 2, 1886, p. 11, fig. 1) from the Cape Verde Islands, is a different species altogether, with D.14. A.10 and pectoral fin with a median light area.

Family HOLOCENTRIDAE.

OSTICHTHYS AUSTRALIS (Castelnau, 1875).

(Fig. 28.)

Myripristes australis Castelnau, Vict. Offic. Rec. Philad. Exhib., 1875, Res. Fish. Austr., p. 4. Cape York, Queensland.

Ostichthys australis Ogilby, Ann. Qld. Mus., ix., 1908, p. 30. "Type" [of Ogilby's description, not Castelnau's species] in Queensland Museum. *Id.* McCulloch, Austr. Mus. Mem., v., 1929, p. 134.

Several nominal genera and species of Squirrel Fishes have been recorded from tropical Australia, some of which have not been identified since first defined. I give here the first published illustration of an Australian specimen of the family Holocentridae.

D.x/i., 14; A.iv., 12; P.i., 14; V.i., 7; C., 17. L.lat., 28. L.tr., $2\frac{1}{2}/1/5\frac{1}{2}$. Nine predorsal scales. Head (44 mm.) about 3, depth (51), 2.5 in standard length (130). Eye (21 mm.) more than twice interorbital (10). Snout, 6 mm.; longest (fourth) dorsal spine, 19; third anal spine, 15; postorbital, 17; least depth of caudal peduncle, 11.

Head bulbous, rugose. Two main interorbital ridges, with a short ridge on each side; posteriorly these expand into several fan-like ridges. Opercles strongly serrate. No enlarged preopercular spine. Eyes very large.

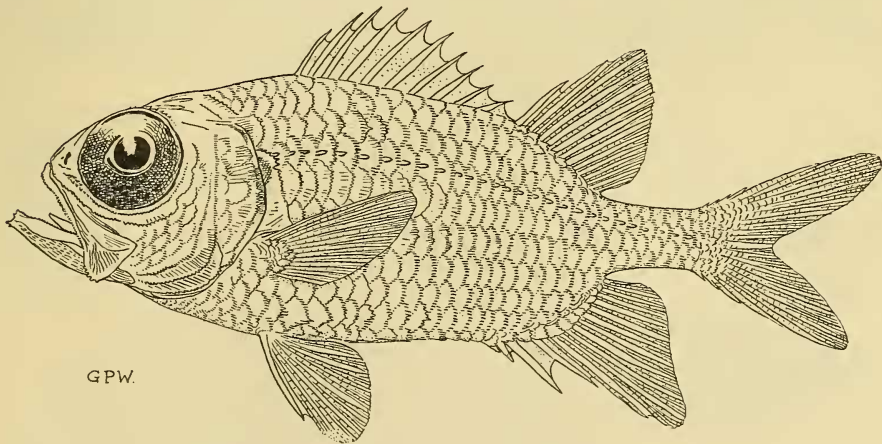


Fig. 28. Squirrel Fish, *Ostichthys australis*.

Maxillary broad, strongly striate. Bands of regular tubercular or villiform teeth on jaws, vomer, palatines, and base of tongue. A few tubercular teeth on chin, in a small patch on each side; above these are two better developed patches in lower jaw anteriorly. About 6 tubercular teeth on lower angle of maxillary.

Mostly straw-colour after long preservation in alcohol, with dark blotch

at opercular angle; the collector described it, when alive, as "altogether scarlet".

Described and figured from a specimen, 130 mm. in standard length or $6\frac{1}{2}$ inches overall, from Armit Island, Whitsunday Group, Queensland; E. H. Rainford, 1922 (Austr. Mus., Regd. No. IA.889). Other specimens, up to $7\frac{1}{4}$ inches long from the same place and the nearby reefs of Port Denison and Hayman Island, are in The Australian Museum.

Comes down to *Myripristis melanostictus* Bleeker, 1863, in Weber and Beaufort's key (Fish. Indo-Austr. Arch., v., 1929, p. 258), but differs from Bleeker's figure of that East Indian species (Atlas. Ichth., ix., 1877, pl. ccciv., fig. 3, as *M. melanostigma*) in lacking the melanism, having larger eye, more slender body, convex soft dorsal margin, pectoral origin further forward, and depth of caudal peduncle about half eye.

Family NOMEIDAE.

NOMEUS DYSCRITUS Whitley, 1931.

(Plate xxx., fig. 29.)

Nomeus dyscritus Whitley, Austr. Zool., vi., 4, February 13, 1931, p. 315. Shellharbour, N.S. Wales.

Here illustrated, natural size, from a painting by A. R. McCulloch of a Maroubra (New South Wales) specimen.

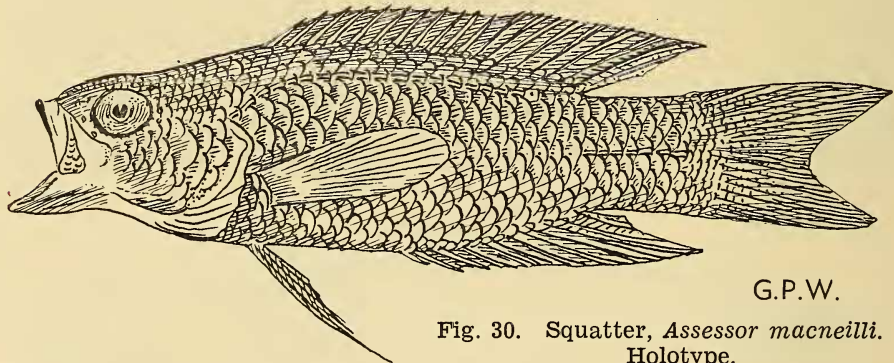


Fig. 30. Squatter, *Assessor macneilli*.
Holotype.

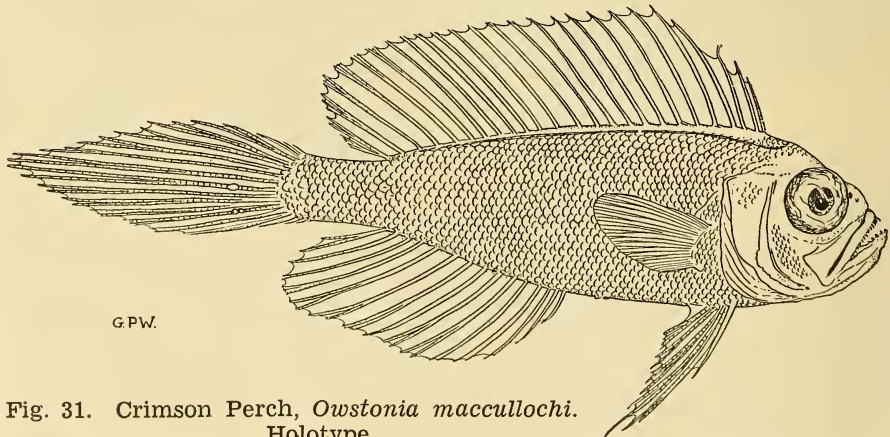


Fig. 31. Crimson Perch, *Owstonia maccullochi*.
Holotype.

Family PLESIOPIDAE.
ASSESSOR MACNEILLI Whitley, 1935.
(Fig. 30.)

Assessor macneilli Whitley, Rec. Austr. Mus., xix., 1935, p. 231.

The holotype, from Hayman Island, Queensland, is now figured for the first time. In the original description, "L.lat. 8 + 7" should have been "L.lat. 18 + 7".

Family OWSTONIIDAE.
OWSTONIA MACCULLOCHI Whitley, 1934.
(Fig. 31.)

Owstonia maccullochi Whitley, Fishes N.S. Wales (McCulloch), ed. 3, 1934, supplement.

The type-specimen of this remarkable deep-sea fish, the Crimson Perch, from 130 fathoms, east of Sydney, New South Wales, is now illustrated.

Family NANNOPERCIDAE.
GENUS NANNOPERCA Gunther, 1861.
NANNOPERCA OXLEYANA, *sp. nov.*
(Fig. 32.)

D.vii., 9; A.iii., 8 (9); P., 12; V.i., 5; C., 14. L.lat. obsolete. Sc. 25. L.tr. 13. About 15 predorsal scales.

Head (8 mm.) 2.6, depth (7) 3 in standard length (21). Eye (2.5) longer than high, and 3.3 in head. Snout 1.5 mm., less than maxillary (2) which is subequal to interorbital space.

Eye large, interorbital scaly. Mouth small, maxilla reaching to below anterior part of eye. Teeth largest on lower jaw anteriorly. Some large pores on vertex of head and around chin. Suborbital shallow and, like all the opercles, with entire margin. Several rows of cheek-scales; all opercles scaly.

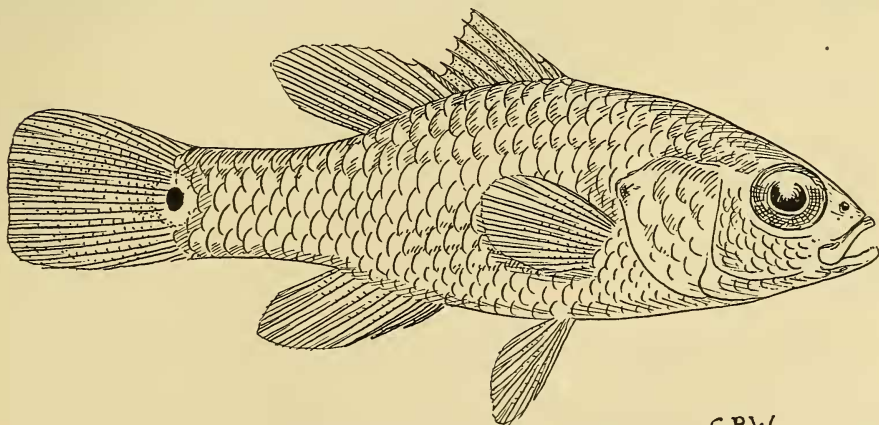


Fig. 32. Pigmy Perch, *Nannoperca oxleyana*. Holotype.

Habit percoid or apogonoid. Body covered with ciliated scales which do not extend on fins.

Dorsals united. Second dorsal spine longest, yet shorter than the rays. Anal spines increasing in length posteriorly. Caudal truncate.

Colour olivaceous, each scale with a darker margin. Tone darkest along

top of back, also there is a tendency to form rows of darker olive or brownish on lower part of flanks. Belly whitish. Eye blue. A blue dot on opercular flap. A conspicuous black ocellus, bordered above and below with orange, at base of tail.

Described and figured from the holotype, 21 mm. in standard length, or about one inch overall, the larger of two specimens (IB.523) from Moreton Island, Queensland, 27/6/40, received from Dr. Hamlyn-Harris. Eight paratypes (IA.3924) in the Australian Museum, from 30 miles inland from Coraki, Richmond River, New South Wales (Hugh James).

Range: Southern Queensland and northern rivers of New South Wales (Oxleyan faunal region, Krefftian fluvifaunula); freshwater.

A small ally, up to 1½ in. long, of the Pigmy Perch, *Nannoperca australis* Gunther, 1861, from which it differs in having deeper body, larger and fewer scales, ocellus on tail and in minor characters.

Family EPIGONIDAE.

SCEPTERIAS LENIMEN Whitley, 1935.

(Fig. 33.)

Scepterias lenimen Whitley, Rec. Austr. Mus., xix., 4, September 19, 1935, p. 230. Great Australian Bight and Victoria.

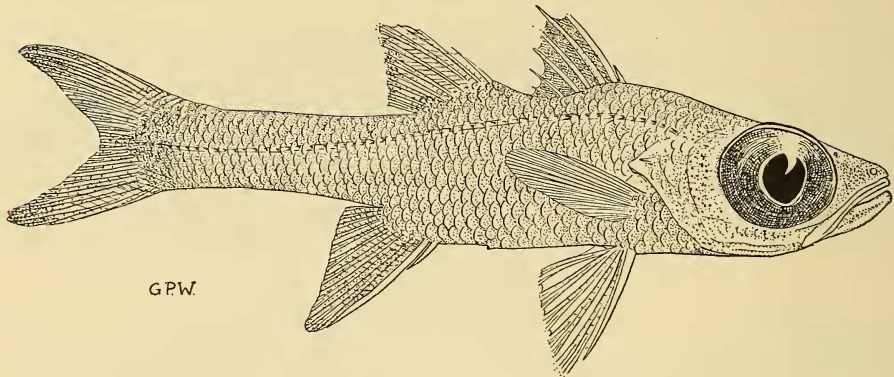


Fig. 33. Deepsea Big-eye, *Scepterias lenimen*. Holotype.

Here illustrated from the holotype (No. E.3368), 92 mm. in standard length or 4½ inches overall, from 190-320 fathoms S.W. from Eucla, Great Australian Bight.

Family CARANGIDAE.

CARANX VALENCIENNEI Castelnau, 1873.

(Fig. 34.)

Here figured from the lectotype of the species, the larger of two specimens numbered 6434A in the Museum National d'Histoire Naturelle, Paris, where I sketched it in 1937.

Interorbital, 6 mm. Snout very slightly longer than eye.

Teeth well developed on jaws and vomer. D.viii/23?; A.ii/20. Breast scaly. About forty scutes on straight portion of lateral line plus some very small ones at root of tail. No dark humeral blotch. Standard length, 100 mm.

Locality.—Noble [or Knob] Island, Queensland.

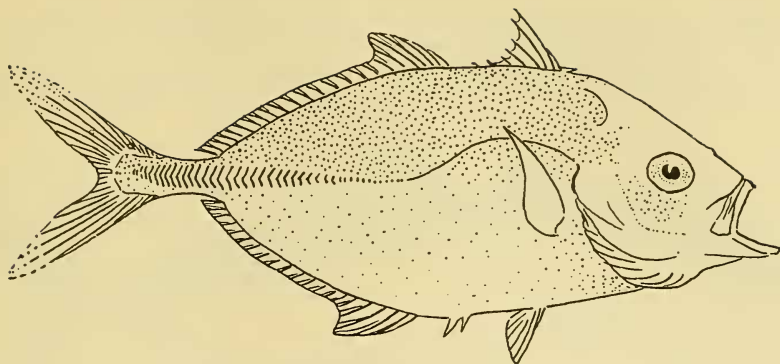


Fig. 34. Trevally, *Caranx valenciennei*. Lectotype.

CITULA DIVERSA, *sp. nov.*

New name for *Caranx altissimus* McCulloch (Biol. Res. Endeav., iii., 3, 1915, p. 134, pl. xxiv.) from south Queensland, not of Jordan and Seale, 1907, from Hong Kong. McCulloch gave the number of dorsal rays as 18-19, a mistake for 22-24.

Family SERIOLIDAE.

SERIOLA HIPPOS Gunther, 1876.

(Fig. 35.)

The Samson Fish has been long known as occurring sporadically in parts of New South Wales. Both Ogilby and Meston recorded it from Queensland and it has been noted from New Zealand. The species may now be recorded from Western Australia. I have seen it caught in Shark's Bay and have been sent photographs of other specimens from that vicinity. The Museum at Perth has two specimens (Nos. P.1225 and 1264) caught off Cottesloe.

D.vii/24; A.ii/16. Head, 55.5 and 70 mm.; depth, 62 and 72; length to end of middle caudal rays, 194 and 238; eye, 12 and 15 mm. Two or three rows of small scales over eye.

The accompanying figure was made from a large, fresh example caught off Bellefin Point on July 13, 1939, when I was holidaying in Shark's Bay. It had the following characters:— Br. 7; D.viii (4th longest) 25; A.ii/16; P.i., 17; V.i., 5; C., 19. Head, $6\frac{5}{8}$ in.. Depth, $7\frac{1}{8}$. Length overall, 30. Weight, 12 lb. $9\frac{3}{4}$ oz.

Eye, 1 in.; interorbital, $2\frac{3}{8}$; snout nearly $2\frac{1}{2}$; depth of caudal peduncle, $1\frac{1}{4}$; its width, $1\frac{3}{4}$ inches.

Patches of red villiform teeth on jaws, on the kite-shaped vomer, on palatines and in centre and around edge of tongue. Symphyses toothless. Margin of tongue convex. Velum maxillare white. Maxilla deep with well-marked supplemental bone, not quite reaching level of eye.

Cheeks scaly. Operculum and preoperculum naked.

Gill-membranes separate from isthmus. No pseudobranchiae.

Nine gill-rakers, shorter than eye, on lower half of first branchial arch.

Scales small, irregular, fairly imbricate in places. Breast scaly. A keel, but no scutes, on each side of tail. Vent in advance of anal fin. 24 vertebrae. Flesh white and flaky, of very good flavour and should can well, as does the allied Californian Yellowtail.

Stomach contained digested fish remains. No parasites found.
 Dorsal and anal fins with sheaths. Caudal fin lunate.
 Precaudal pit above and below.
 Colour iridescent silvery-olivaceous above to silvery below with much

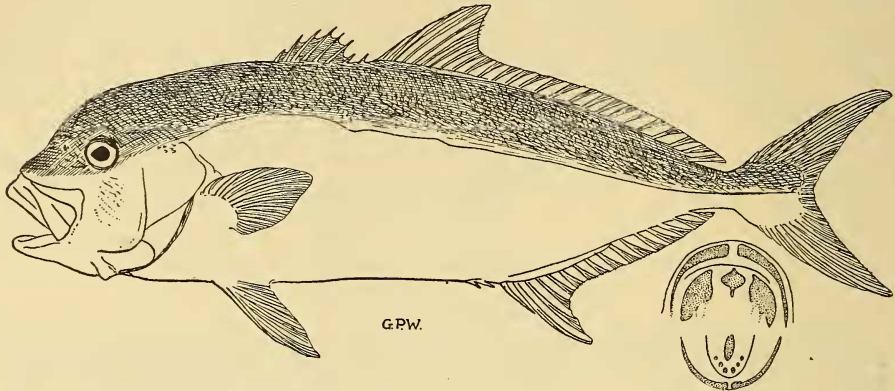


Fig. 35. Samson Fish, *Seriola hippos*, and its dentition.

yellowish tinge, especially on pectorals and sides of head. Other fins olivaceous. Eye blue, with yellow and olive iris. Inside of mouth white, except for the red teeth.

Family SCIAENIDAE.

JOHNIUS NOVAEHOLLANDIAE (Steindachner, 1866).

(Fig. 36.)

In the Württembergische Naturaliensammlung, Stuttgart, in October, 1937, I saw two type-specimens of *Umbrina mulleri* Klunzinger, 1879. I select the smaller (167 as against 175 mm. in standard length) specimen as

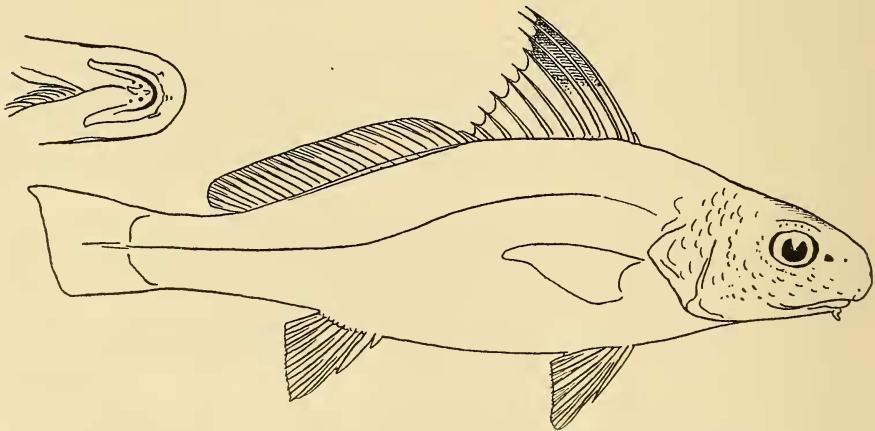


Fig. 36. Bottlenose Jewfish, *Johnius novaehollandiae*
 (Lectotype of *Umbrina mulleri*). Also ventral surface of head.

lectotype and figure it here. Both were labelled "2440, Endeavour R., Queensland v. Müller, '78". This belongs to the same species as *Sciaena novaehollandiae* Steindachner, 1866, of which *mulleri* Klunzinger now becomes a synonym.

SCIAENA MULLERI Steindachner, 1879.

(Fig. 37.)

Sciaena mulleri Steindachner, which was doubtfully listed as a synonym of *S. soldado* (Lac.) in McCulloch's "Check-List", is really the same species as *S. leptolepis* Ogilby, which thus falls as a synonym.

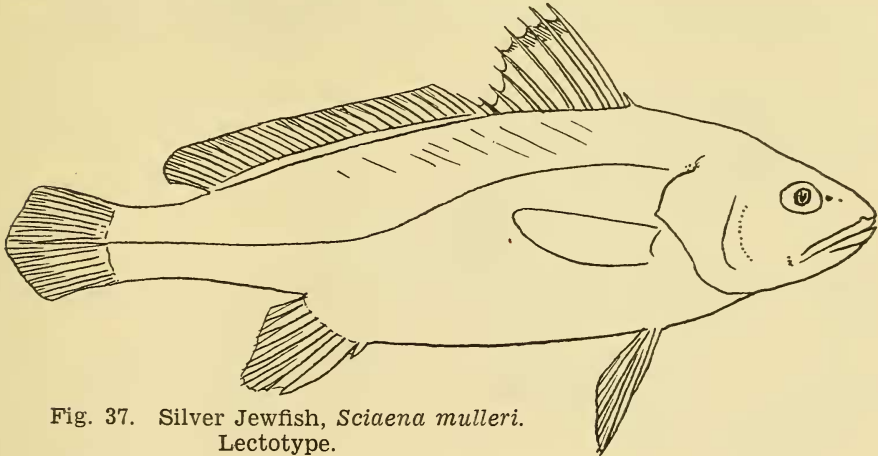


Fig. 37. Silver Jewfish, *Sciaena mulleri*.
Lectotype.

The lectotype of Steindachner's species I sketched in the Stuttgart Museum, No. 2267. Cleavelands Bay, Queensland v. Muller, '77. It is 275 mm. in total length, has D.ix/i., 30; A.ii., 7, and is figured here.

Family HOLACANTHIDAE.

CHAETODONTOPLUS DUBOULAYI (Gunther, 1867).

(Plate xxxi., fig. 38.)

Here figured from a specimen about $8\frac{1}{2}$ inches long brought to Sydney alive from Port Darwin, Northern Territory (Austr. Mus., Regd. No. IA. 8089). Colours: Ground colour dark slate-greyish with slightly brownish-red tinge on most of body and along ocular stripe. Lips dirty brownish with blue stripe along edges. Snout dull yellow. Pupil blackish, iris bright blue, ringed around with yellow. Throat yellowish on the slate-greyish ocular stripe below gill-opening. Most of postocular head white with slight bluish tinge. A broad yellow area from anterior dorsal spines downwards over the yellow pectoral and ventral fins, becoming more orange posteriorly. Here it is strongly separated by a milky white stripe from the dark ground-colour of the rest of the body, the latter being banded and reticulated with milky-white wavy lines centred with navy blue. A broad bright yellow area along base of soft dorsal fin. Most of dorsal and anal fins yellow, overlain with brown to give a dirty orange hue, darker towards bases; this yellow area is crossed by wavy bands of blue. The edges of soft dorsal and anal spines and rays are broadly bordered with bright dark blue, the border edged darker above and below. Caudal canary yellow spotted with scattered orange dots and with an inframarginal border of white (anteriorly) and deep orange (posteriorly).

Family SCATOPHAGIDAE.

SELENOTOCA AETATE-VARIANS (De Vis, 1884).

(Plate xxxi., fig. 39.)

The type of *Scatophagus multifasciatus* var. *altermans* Castelnau, 1878, in the Paris Museum, is here figured. It evidently belongs to the genus *Selenotoca* Myers (Proc. Biol. Soc. Washington, xlix., 1936, p. 84) and the species is synonymous with *S. aetate-varians* De Vis, 1884, as are also *Scatophagus semistrigatus* Saville-Kent, 1893 (spelt *S. semistrigigena* by Innes, The Aquarium, i., 11, 1933, p. 301) and the young forms given the nomina nuda *S. brunneus* and *chameleon* by Saville-Kent.

Selenotoca aetate-varians is the eastern and northern Australian cognate of the Western Australian *Selenotoca multifasciata* (Richardson, 1846).

Scatophagus argus is represented in Australia by *quadranus* De Vis (sometimes spelt *quadratus*), whilst *Desmoprenes tetracanthus* (Lacépède) has been recorded from the Northern Territory.

For references, see Austr. Mus. Mem., v., 1929, pp. 241 and 242.

Family LATRIDAE.

MENDOSOMA ALLPORTI Johnston, 1881.

(Fig. 40.)

The accompanying sketch was made by the late A. R. McCulloch from a 14½ inch specimen in the Tasmanian Museum, Hobart.

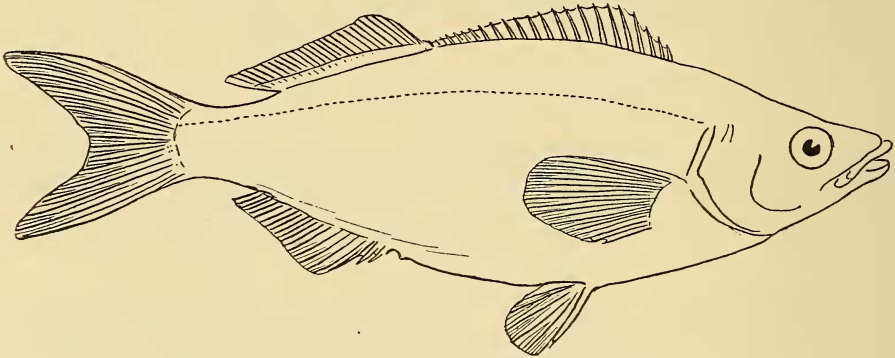


Fig. 40. Real Bastard Trumpeter, *Mendosoma allporti*.

Length to hypural joint, 317 mm. Head, 77. Depth, 106.

Jaws very protractile, the upper symphysis with microscopic teeth.

D.23/i., 25; A.2/19 (first spine, if present, hidden in the flesh); P., 18, only the small one or two lower rays simple.

Lateral line consisting of small scales intercalated between the larger ones on either side. There are about 67 to the hypural.

Family ODACIDAE.

NEODAX BALTEATUS (Cuv. & Val., 1839).

(Plate xxx., fig. 41.)

The accompanying illustration is from a photograph of the type of *Odax obscurus* Castelnau, 1872, in the Museum National d'Histoire Naturelle, Paris.

The specimen came from the Melbourne Markets and has less than 40 L.lat. scales. Thus *obscurus* becomes a synonym of *balteatus*.

Family TEUTHIDAE.
ACRONURUS FORMOSUS Castelnau, 1873.
(Fig. 42.)

There are two specimens of this species in the Museum at Paris of which I select the larger (standard length, 62 mm.) as lectotype. Regd. No. 7096A.

D. viii/31?. A. iii/32?. Vi/5. First ray long.

This is evidently the young stage of some Surgeon Fish, like *Teuthis*, having still the characteristic vertical body-striae.

Further specimens are needed to ascertain what the adult looks like.

Locality.—"Noble-Ireland"; *i.e.*, Knob Island, Torres Strait, Queensland.

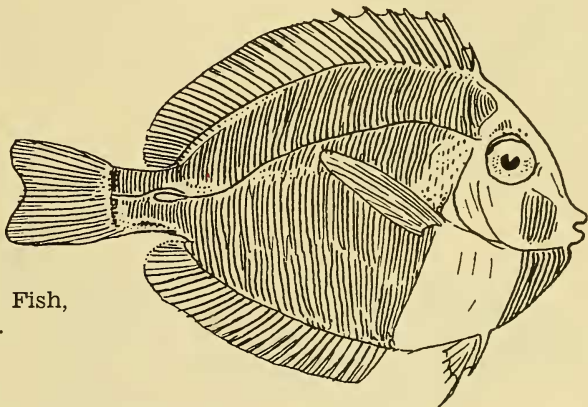


Fig. 42. Young Surgeon Fish,
Acronurus formosus.
Lectotype.

Family PARAPERCIDAE.

PARAPERCIS (NEOSILLAGO) NEBULOSUS (Quoy & Gaimard, 1825).

Neosillago marmorata Castelnau, from Port Walcott, north-western Australia, has not been satisfactorily identified and classified since it was first described in 1875. However, on comparing Castelnau's description with Richardson's figure (*Icones Piscium*, 1843, p. 4, pl. i., fig. 1) of *Percis emeryana* from Depuch Island, north-western Australia, I find the two tally very well. Thus *Neosillago marmorata* = *Percis emeryana* = *Percis nebulosus* Quoy & Gaimard, 1825, from Shark's Bay. This species enters the genus *Parapercis* Bleeker, 1863, but *Neosillago* may be retained as of at least subgeneric rank with *Chilias* as an indirect synonym.

Family GOBIIDAE.

KOUMANSETTA, *gen. nov.*

Orthotype, *K. rainfordi*, sp. nov.

Body elongate, compressed, covered with circa 60 scales, ctenoid posteriorly, becoming cycloid anteriorly. Head compressed, scaled above behind eyes, cheek with embedded scales, opercle scaled. Eye in anterior half of head, interorbital narrow. Snout pointed. Both nostrils in a rim. Mouth a little oblique, upper jaw prominent. Teeth in some rows, in upper jaw outer row enlarged, in lower jaw outer row enlarged, extending to half-way along the jaw, last tooth a curved canine. Laterally inner row of teeth in lower jaw enlarged. Tongue truncate. Gill-opening not continued forward below, isthmus broad. No fleshy flaps on inner edge of shoulder

girdle. Dorsal fins separate. D. vi/i., 11; A. i., 11; V. 1, 5, the inner rays are only united at the bases to half-way along the fin, a basal membrane is not developed. Pectoral without free silk-like rays. Caudal rounded.

KOUMANSETTA RAINFORDI, sp. nov.

(Fig. 43.)

D. vi/i., 11; A. i., 11; P., 17. L. lat. circa, 58; L. tr., 19. Predorsal scales 26. Body elongate, compressed; height, $4\frac{1}{2}$ in length. Head compressed; $3\frac{1}{4}$ in length. Eye 4 in head. Interorbital $\frac{1}{2}$ eye-diameter. Snout pointed, about as long as eye, tip before middle of eye. Nostrils in a rim. Teeth as given in genus description. Mouth a little oblique, upper jaw prominent, maxillary extends to below anterior margin of pupil. Mucous canals indistinct. Two open pores in a median line in interorbital, some along supraopercular groove. Scales of head as is given in genus description. First dorsal fin lower than body, first ray filiform. Pectoral and ventral fins as long as postorbital part of head. Caudal rounded, shorter than head.

Colour in spirits, yellowish brown; 6 longitudinal white bands bordered with dark on each side, begin on head.

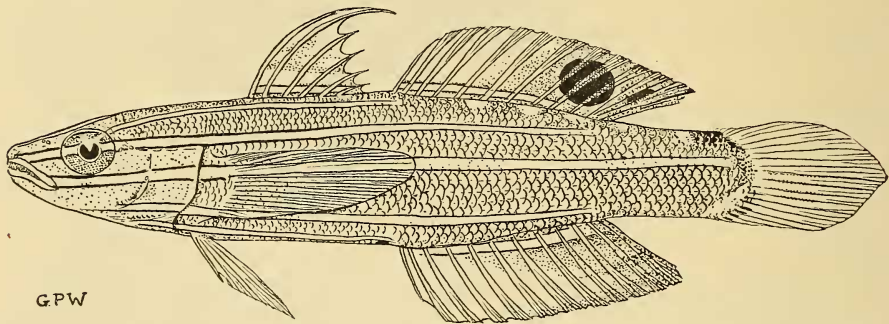


Fig. 43. Old Glory, *Koumansetta rainfordi*. Holotype.

First band reaches from tip of snout along interorbital to insertion of first dorsal fin; second from tip of snout through eye, here it is divided into two bands, the upper to half-way along second dorsal fin, the lower to upper part of caudal base; the fourth band goes from edge of mouth over operculum and base of pectoral on middle of side to base of caudal fin; the fifth begins on cheek, runs on lower part of base of pectoral fin along base of anal to lower part of caudal peduncle; the sixth begins on branchiostegal membranes and extends to base of ventral. First dorsal fin with white bands, bordered on each side by dark, along base. Second dorsal with a similar band, between 7th to 10th ray a black ocellus, bordered by white, tips of last rays dark. A black spot on caudal peduncle at the beginning of the upper caudal fin-rays, continued as a narrow stripe, along the bases of the rays, followed by a white bent stripe, which is followed by a dark stripe on the lower caudal rays. Anal with a similar band as second dorsal; the fin membranes of second dorsal and anal are dark. Pectorals and ventrals colourless. Length, 47 mm.

Habitat: Hayman Island, Whitsunday Group, Queensland.

Unique type-specimen (No. IA 2029) in the Australian Museum, Sydney, collected by the late E. H. Rainford in 1924.

The above description was drawn up by Dr. F. P. Koumans, of Leiden, Holland, during his visit to the Australian Museum in 1938. He determined it as a new genus and species of unusual interest, but left it unnamed, whilst I undertook to prepare an illustration of it. As I am now unable, through the exigencies of war, to continue correspondence with Dr. Koumans, I supply a generic name for this interesting fish which will enshrine memories of the happier days of our meetings in Leiden and Sydney.

Family OPHICLINIDAE.

SCLEROPTERYX DEVISI (Ogilby, 1894).

(Fig. 44.)

Here figured from the holotype which is in The Australian Museum, not the Queensland Museum as stated in Austr. Mus. Mem., v., 1929, p. 353.

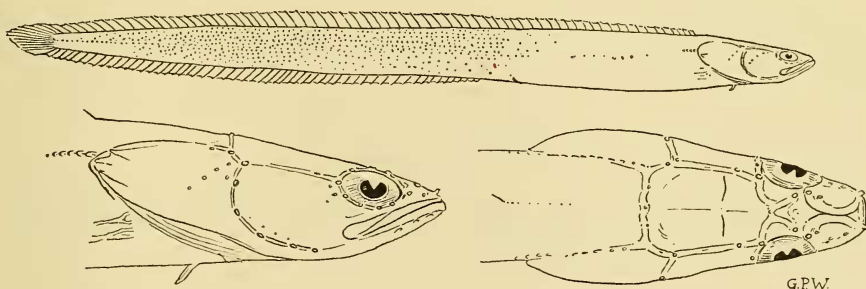


Fig. 44. Northern Snake Blenny, *Scleropteryx devisi*. Holotype.

I may record here that the "*Gunellichthys spec.*" recorded from Thursday Island by Weber (Zool. Forsch. Austr., v., 1895, p. 268) was a *Notograptus guttatus*; I examined Weber's specimen when in Amsterdam in 1937.

Professor P. Schmidt of Leningrad kindly sent me copies of Herzenstein's descriptions of South Australian fishes which are missing from Australian libraries. From these I have determined that *Neogunellus homacanthus* Herzenstein, 1896, is conspecific with *N. sulcatus* Cast., or *Ophiclinus sulcatus* as described by McCulloch and Waite (Rec. S. Austr., Mus., i., 1918, p. 55, fig. 28) and equals *Ophiclinus antarcticus* Castelnau, 1872.

The *Neogunellus microchirus* of Herzenstein, 1896, is evidently the same as *Peronedys anguillaris* Steindachner, 1894.

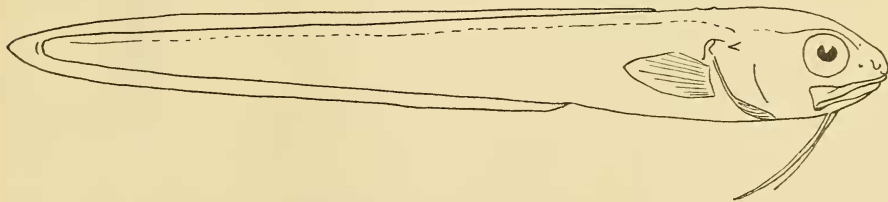


Fig. 45. Rockling, *Otophidium genyopus*. Holotype.

Family OPHIDIIDAE.

OTOPHIDIUM GENYOPUS Ogilby, 1897.

(Fig. 45.)

Here figured from the 42 mm. holotype from Maroubra, New South Wales. The dentition was described by McCulloch (in MS.):—

“Premaxillaries with an outer row of strong, slightly curved and spaced teeth, which are largest near the symphysis, and become smaller backwards; an inner row of smaller teeth which appears to be double anteriorly. Mandible with a narrow band of strong teeth along its whole length; no outer enlarged row as in the premaxillaries. Vomer with numerous strong teeth forming a triangular patch. Palatines with a single row of strong teeth.”

Family CONGIOPODIDAE.

PERRYENA, *gen. nov.*

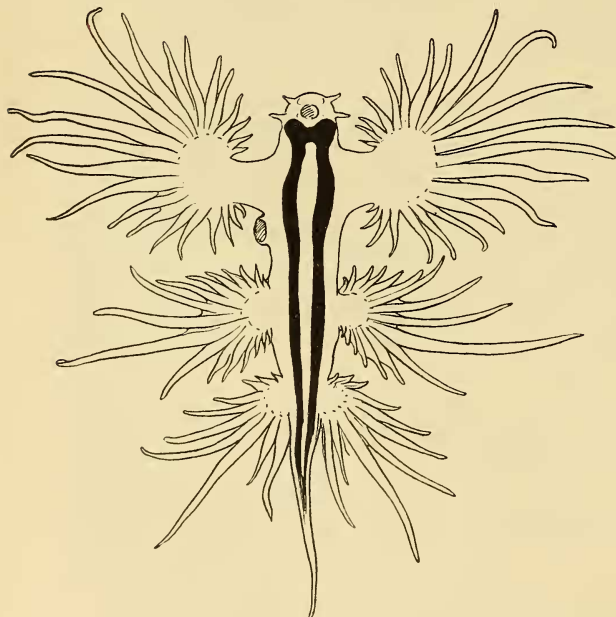
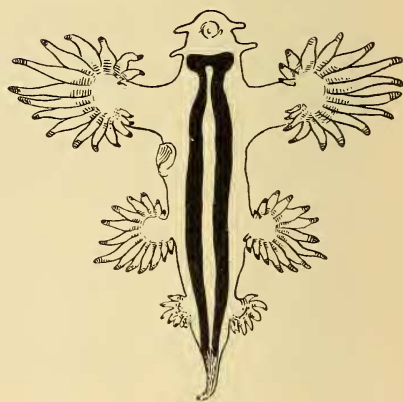
Orthotype, *Congiopus leucometopon* Waite, 1922, from South Australia = *Perryena leucometopon*.

Distinguished from *Congiopodus* Perry, 1811, by having three anal spines, fewer dorsal rays, branched pectoral rays, by the peculiar form of the snout and striking coloration of head.

AUSTRALIAN GLAUCUS.

By TOM IREDALE.

In the last Proceedings (pp. 40-41, August 19, 1940) the Australian species of *Glaucus* were discussed, and sketches are now offered supplementing the notes abovementioned.

*Glaucus lineatus* Bergh.*Glaucilla briareus* Bergh.

G. P. Whitley del.